USER'S MANUAL

SB-2000 PUMP CONTROLLER

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INTRODUCTION

The SB-2000 Pump Controller is a multiple pump control system that utilizes a pressure transmitter to maintain a user defined set discharge pressure by turning on additional pumps. When the discharge pressure setpoint has been met the pumps will then begin to cycle off in reverse order to extend the life of the pumps and lower the energy use by the consumer.

QUICK START

1. After power is applied to the unit the system will boot into the main screen like figure 1.0 below. (The screen will display the number of pumps that your system is configured for. The examples in this manual is for the the three pump configuration.)

Figure 1.0

2. Press the PUMP SETUP button on the bottom of the main screen. You will now see the pump setup screen like figure 1.1 below. (The screen will display the number of pumps that your system is configured for. The examples in this manual is for the the three pump configuration.)
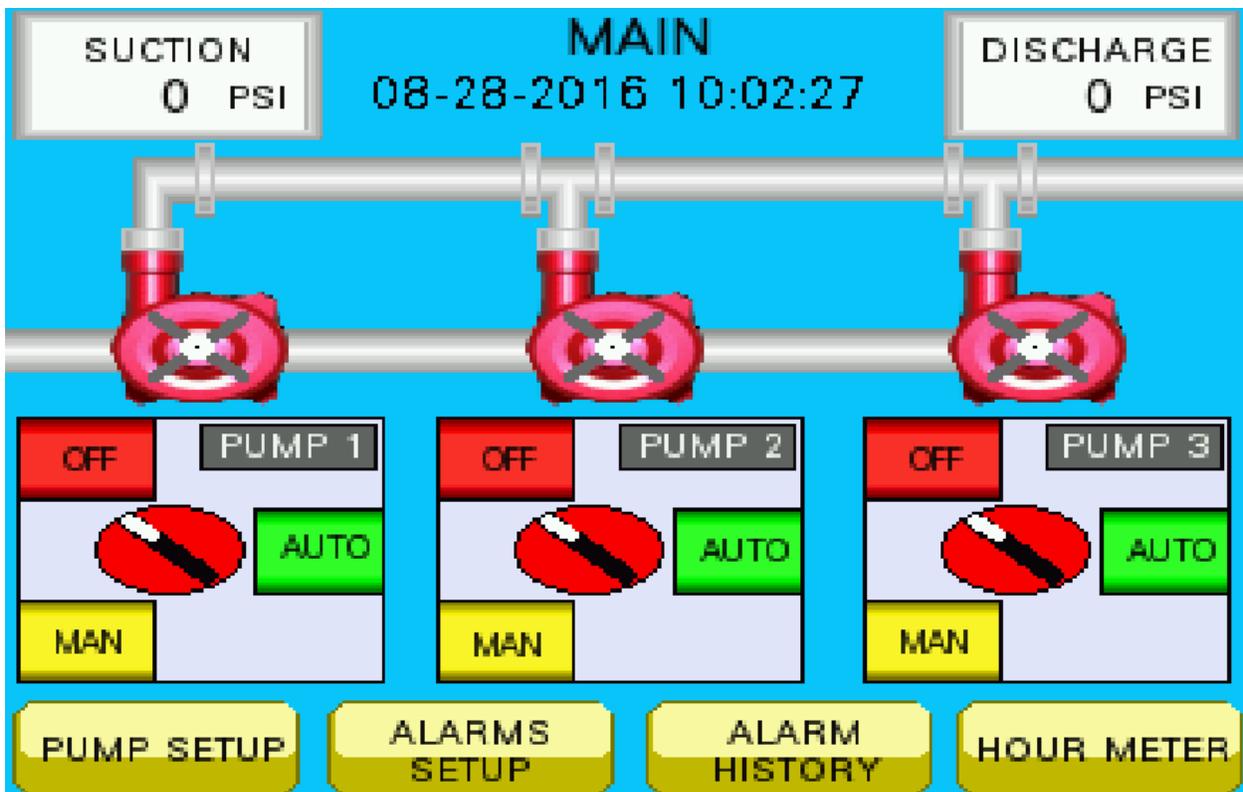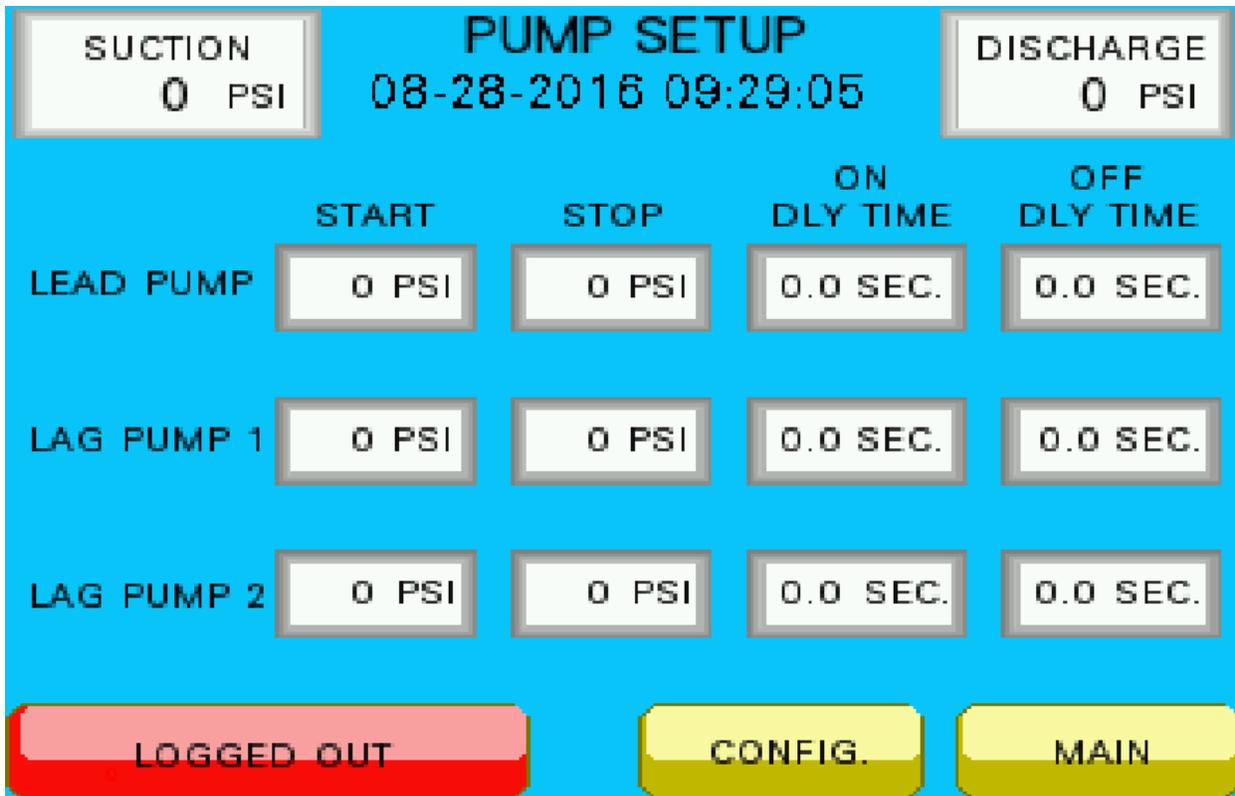
Figure 1.1

3. To change any parameters on any screen you must be logged in. If you make an attempt to change any setpoint without being logged in you will see a login error message pop up like figure 1.2 below. To login press the red LOGGED OUT button on the bottom of the screen. You will now see a keypad pop up in the bottom left corner of the screen like figure 1.3 below.
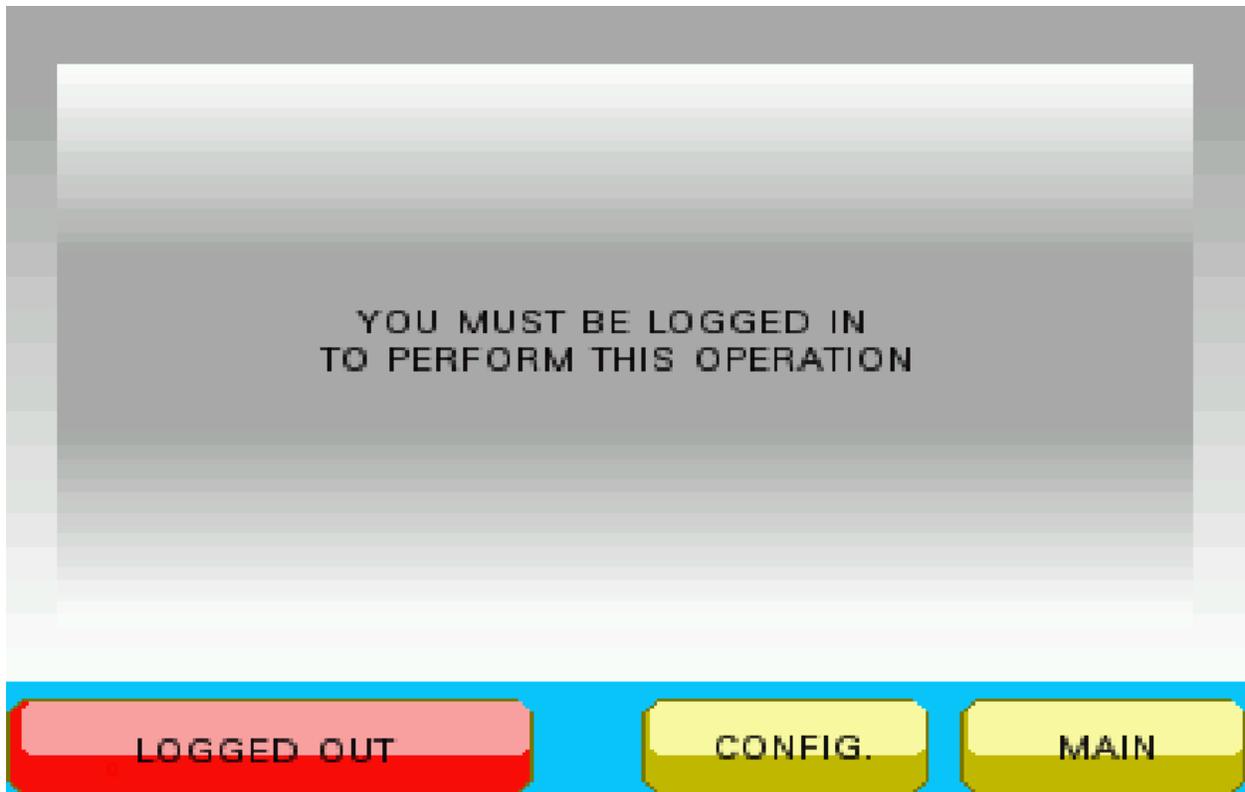
YOU MUST BE LOGGED IN
TO PERFORM THIS OPERATION

LOGGED OUT | CONFIG. | MAIN

Figure 1.2

Max:9999
Min:0

0

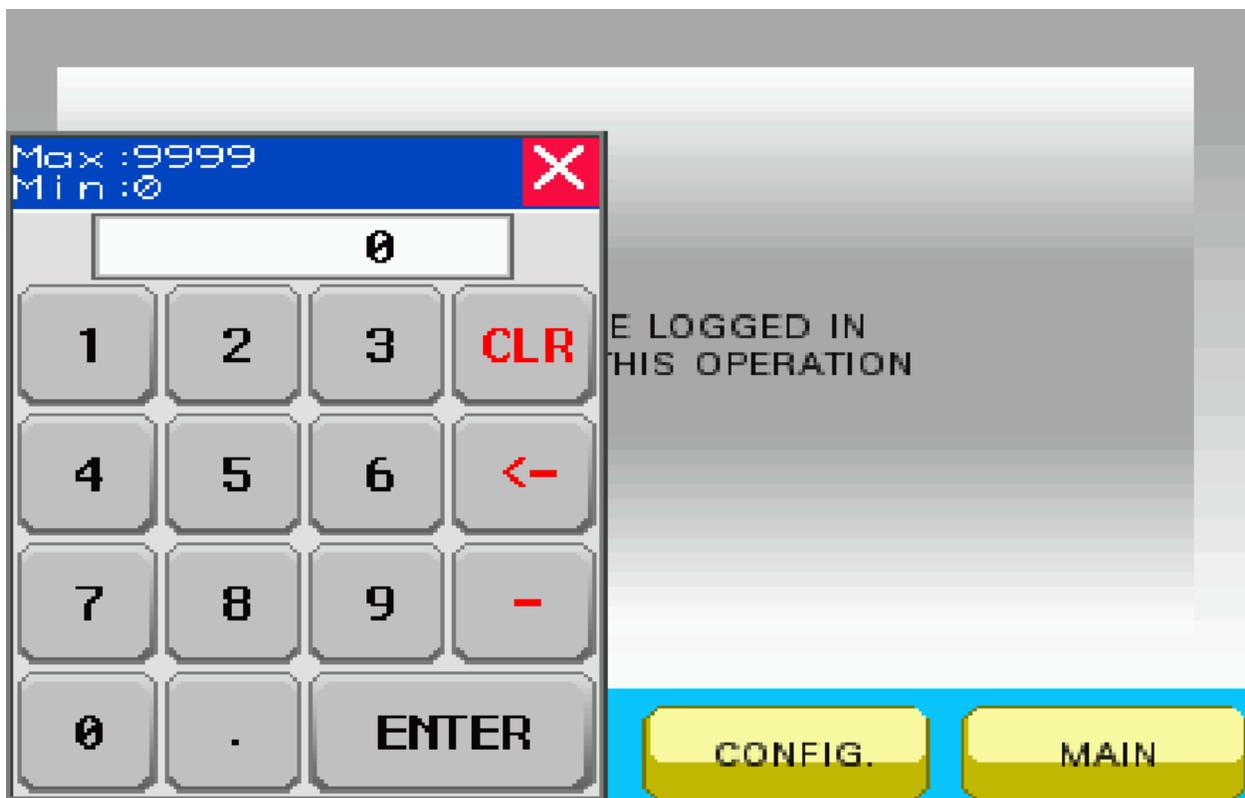| 1 | 2 | 3 | CLR |
4	5	6	<-
7	8	9	-
0	.	ENTER

E LOGGED IN
THIS OPERATION

CONFIG. | MAIN

Figure 1.3

4. Type the password (1951) and press ENTER. The red LOGGED OUT button will now turn green and will display the amount of time in seconds you have before the system automatically logs you out like figure 1.4 below. As long as you are touching the screen on any page the logged out timer will continue to reset to sixty seconds. Once the user stops touching the screen the logout timer will count down to 0 and automatically log the user out. Any parameters that were changed will be sent to the system on log out. If you would like to manually log out before the sixty second timer expires you can simply press the green LOGGED IN button, you will then be logged out and the red LOGGED OUT button will reappear.
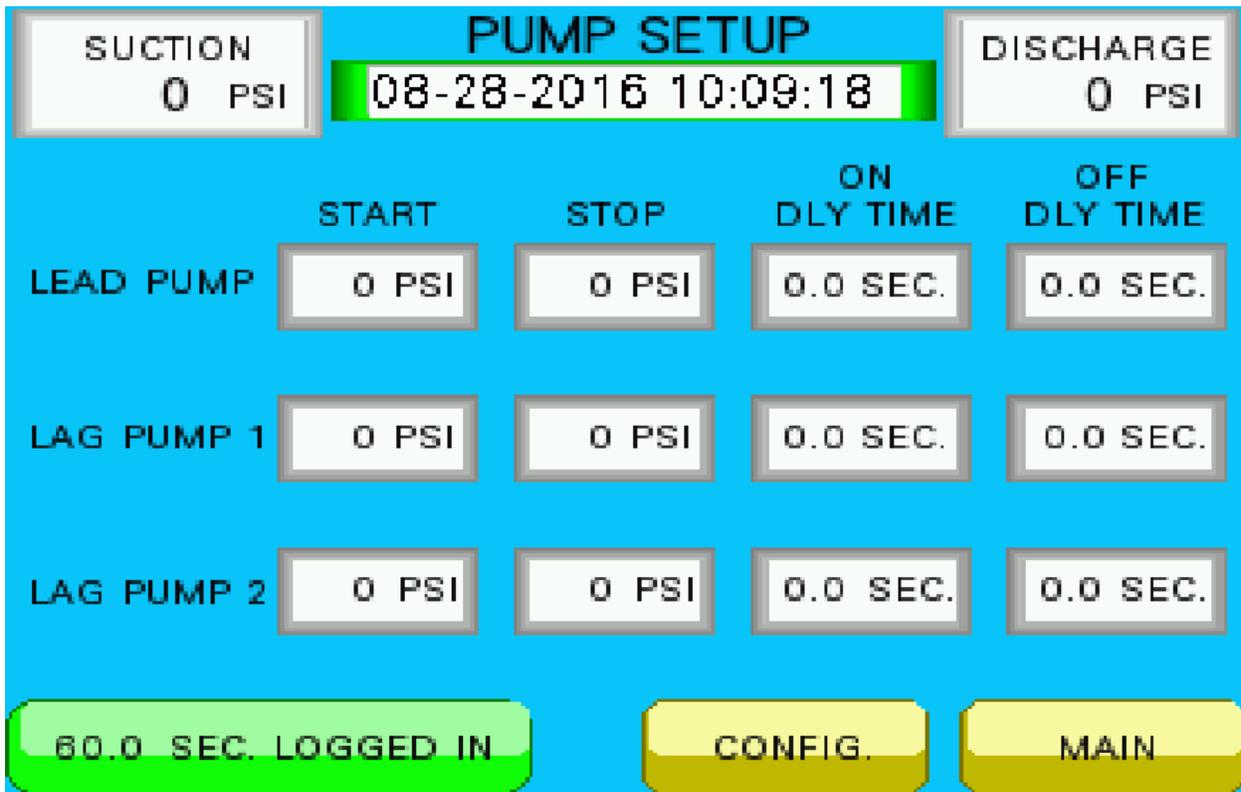
SUCTION 0 PSI	PUMP SETUP 08-28-2016 10:09:18			DISCHARGE 0 PSI
	START	STOP	ON DLY TIME	OFF DLY TIME
LEAD PUMP	0 PSI	0 PSI	0.0 SEC.	0.0 SEC.
LAG PUMP 1	0 PSI	0 PSI	0.0 SEC.	0.0 SEC.
LAG PUMP 2	0 PSI	0 PSI	0.0 SEC.	0.0 SEC.
60.0 SEC. LOGGED IN		CONFIG.		MAIN

Figure 1.4

5. Now that you are logged in you can press on any setpoint and change the value. The stop PSI setpoint must be at least two PSI above the entered start PSI. The lead pump should have the highest start pressure setting.

6. Enter an on and off delay setpoint for each pump that is long enough to eliminate starter chatter but short enough to quickly bring the discharge pressure back up to setpoint when commanded.

7. From the PUMP SETUP screen you have the ability to go to the CONFIGURATION screen like figure 1.5 below. Here you can see how your system has been configured from the factory. You cannot change these parameters and must contact your local distributor to change them. If you try to change these parameters you will see a message like figure 1.6 below.
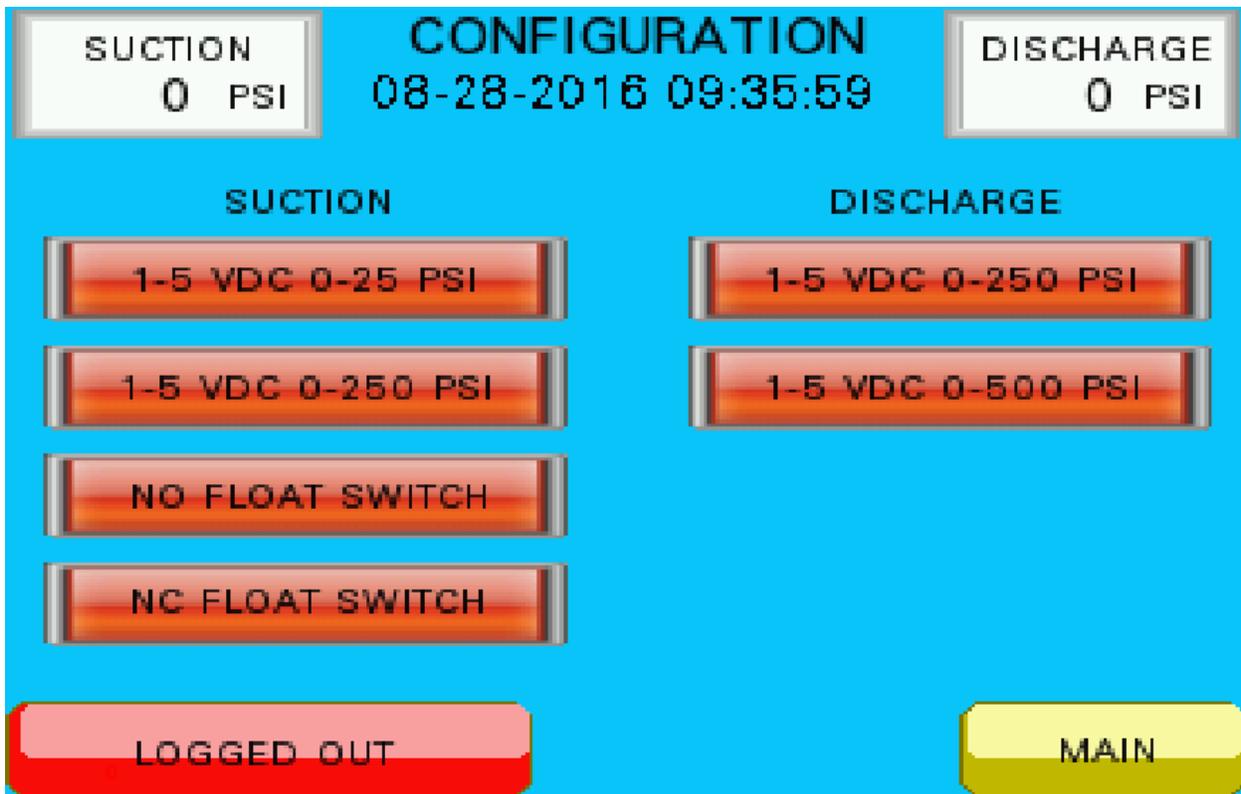

SUCTION	CONFIGURATION	DISCHARGE
0 PSI	08-28-2016 09:35:59	0 PSI

SUCTION

DISCHARGE

1-5 VDC 0-25 PSI

1-5 VDC 0-250 PSI

1-5 VDC 0-250 PSI

1-5 VDC 0-500 PSI

NO FLOAT SWITCH

NC FLOAT SWITCH

LOGGED OUT

MAIN

Figure 1.5

Figure 1.6

8. While logged in press on the clock toward the top of the screen. You will see the button flashing green and silver. Once you press the clock button it will take you to the TIME screen like figure 1.7 below.

Figure 1.7

9. On the TIME screen enter the current date and time. This is the time used when logging alarms that will be discussed later in this manual. After the date is set press the MAIN button to go back to the MAIN screen.

10. From the MAIN screen press the ALARMS SETUP button. This will take you to a screen that looks like figure 1.8 below. (If your system utilizes a Float switch rather than a suction transducer the suction alarm settings will not be available.)
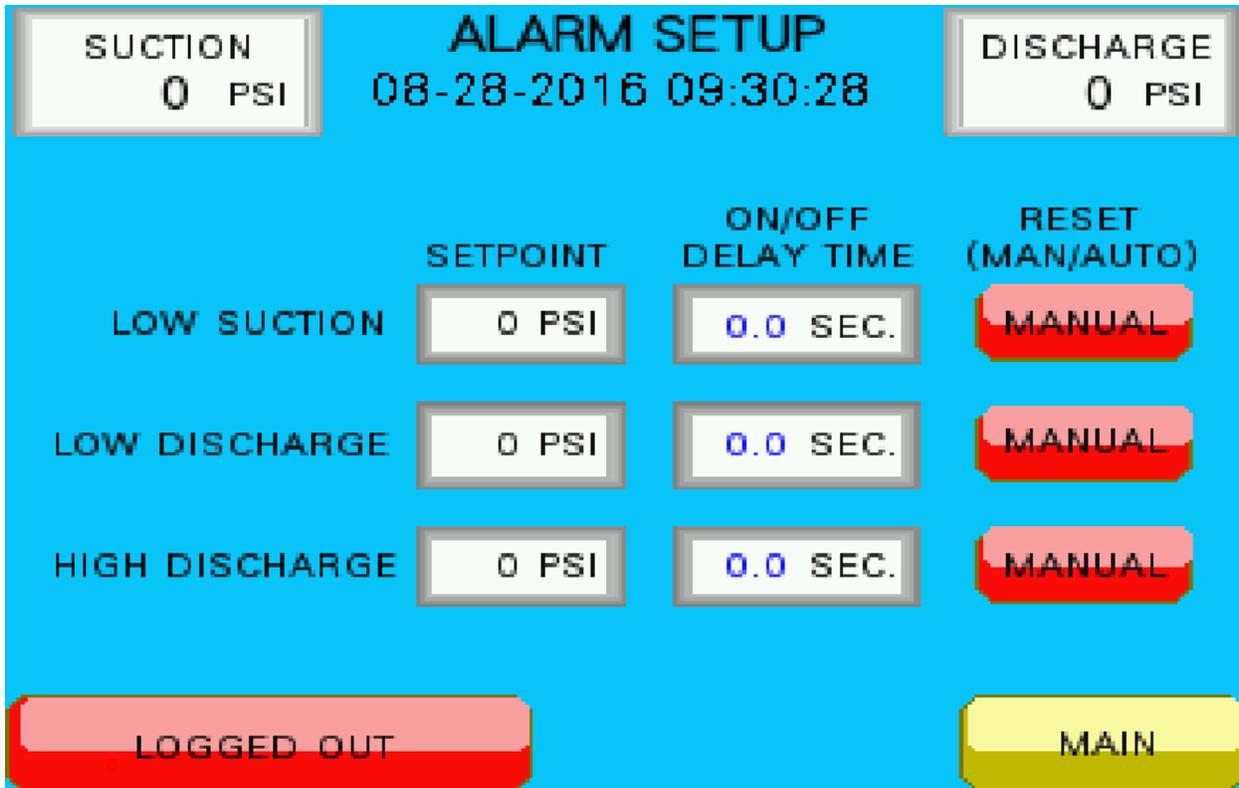
Figure 1.8

11. If the user is still logged in you can enter the correct pressure settings for low suction, low discharge, and high discharge. From this screen you have the ability to make the pressure alarms reset automatically or manually. If the alarms are set to manual the user will have to press the alarm reset button to clear the alarm so the pumps can run again. If the alarm is set for auto reset the alarm can be reset up to 5 times within a one hour period. If the alarm trips for the fifth time in the one hour period the alarm will automatically be changed to manual and will stay in the alarm state not allowing the pumps to run. At this point the alarm can be placed back into auto. The ALARM RESET button will need to be pressed and the system will be reset. After the user has entered all necessary parameters the MAIN button can be pressed to go back to the MAIN screen.

12. Now press the green AUTO button next to the HOA switch under each pump. The screen will look like figure 1.9 below and your system should now be running. If the pumps are running they will appear green and you will see the impellers of each pump rotating. (If your system uses a float switch rather than a suction transducer the suction readout will not appear on your screen)
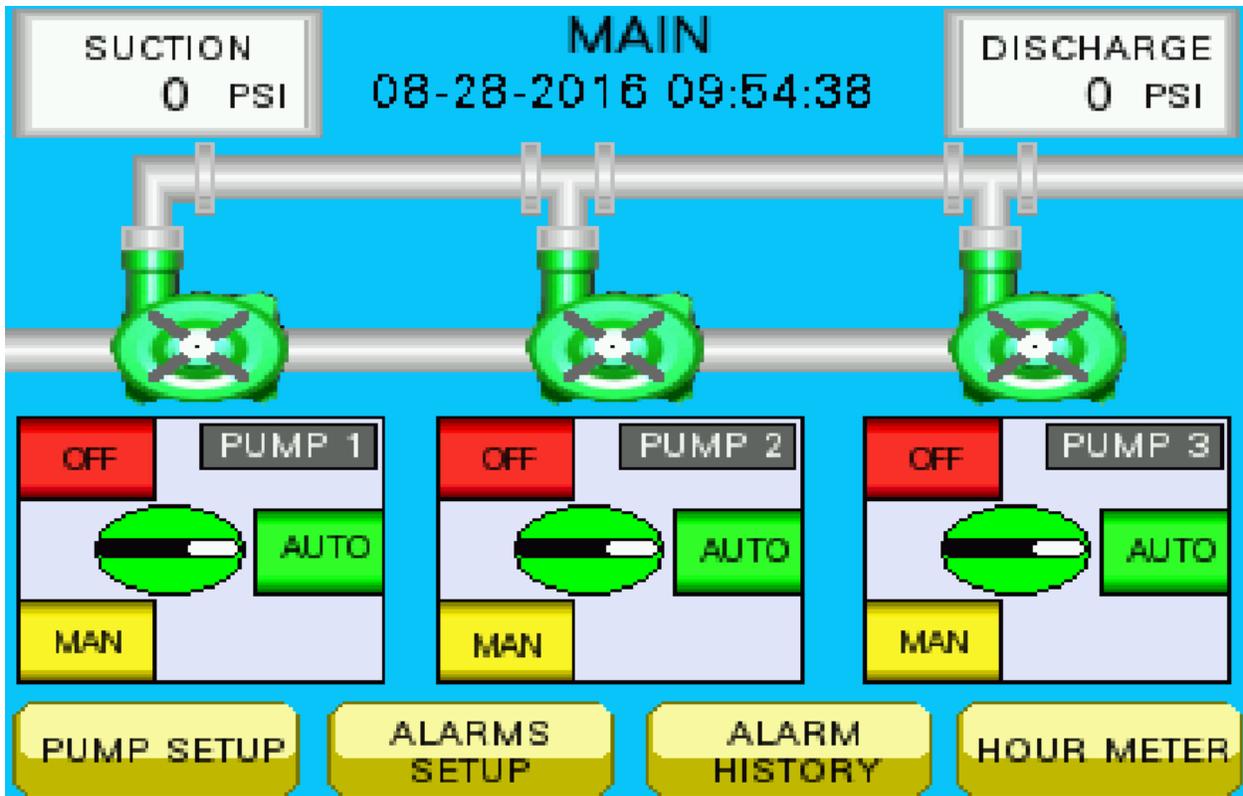
Figure 1.9

AUTOMATIC OPERTATION

1. The system is in automatic after the correct system and alarm pressures have been set by the user and the HOA switches are placed in auto. When the HOA is in auto the selector switch will be green in color and pointing at the AUTO button. If the system is in auto and the pump is not running the pump will appear red and the impeller will not be rotating like figure 2.0 below. If the system is in auto and the pump is running the pump will appear green with a rotating impeller like figure 2.1 below.

2. In auto mode the pumps will automatically rotate the lead pump to maintain a balance of use on each pump. The lead pump changes each time all pumps come to a stop for any reason.

3. In auto mode the pumps will run according to the discharge pressure and setpoint unless there is an alarm condition present.
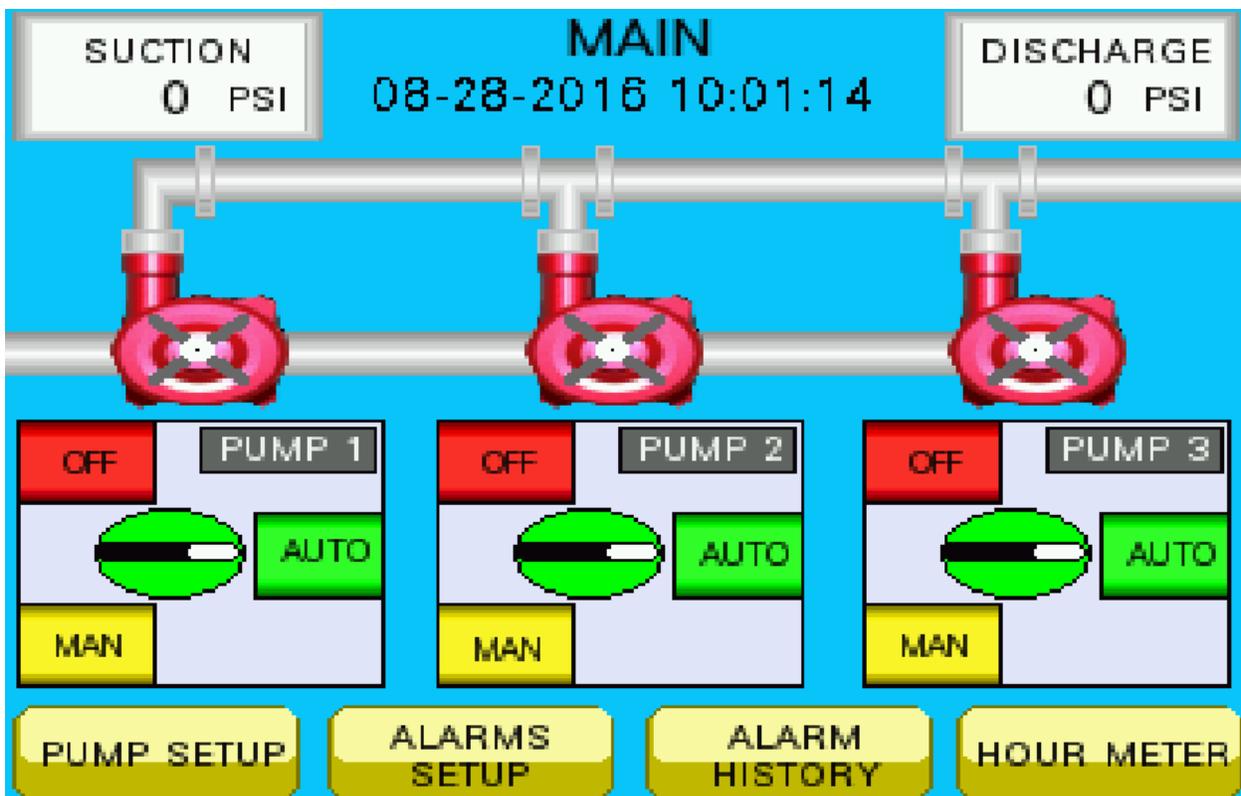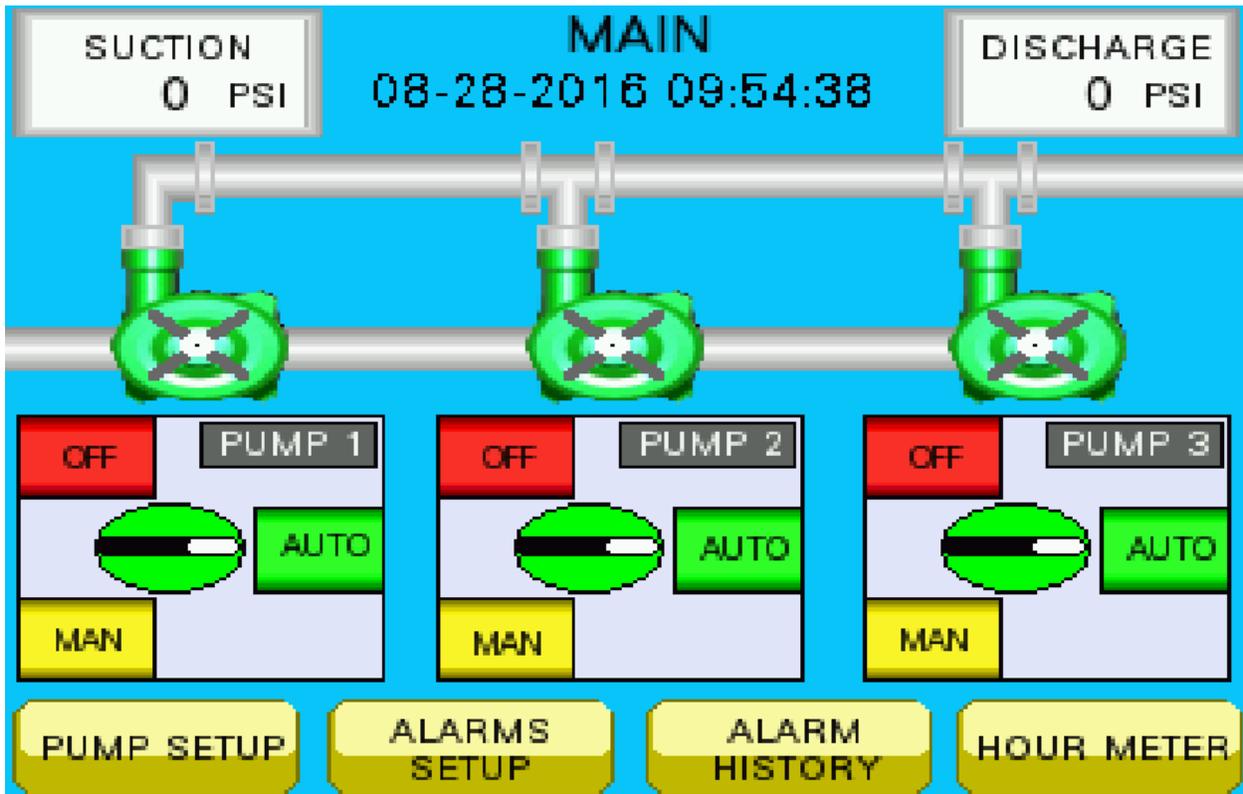

Figure 2.0

Figure 2.1

MANUAL OPERTATION

1. The system is in manual after the correct system and alarm pressures have been set by the user and the HOA switches are placed in manual. When the HOA is in manual the selector switch will be yellow in color and pointing at the MAN button. If the system is in manual and the pump is not running the pump will appear red and the impeller will not be rotating like figure 3.0 below. If the system is in manual and the pump is running the pump will appear yellow with a rotating impeller like figure 3.1 below.

2. In manual mode the pumps will run regardless of discharge pressure unless there is an alarm condition present.
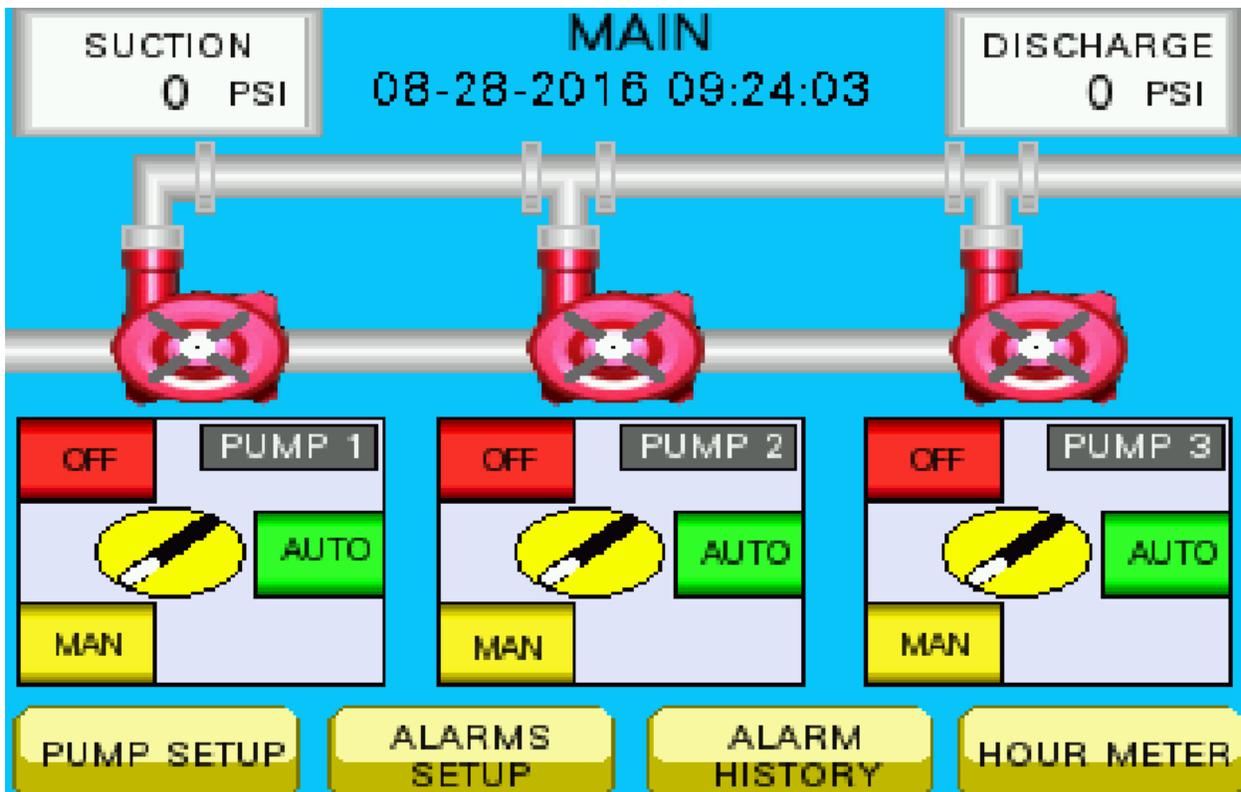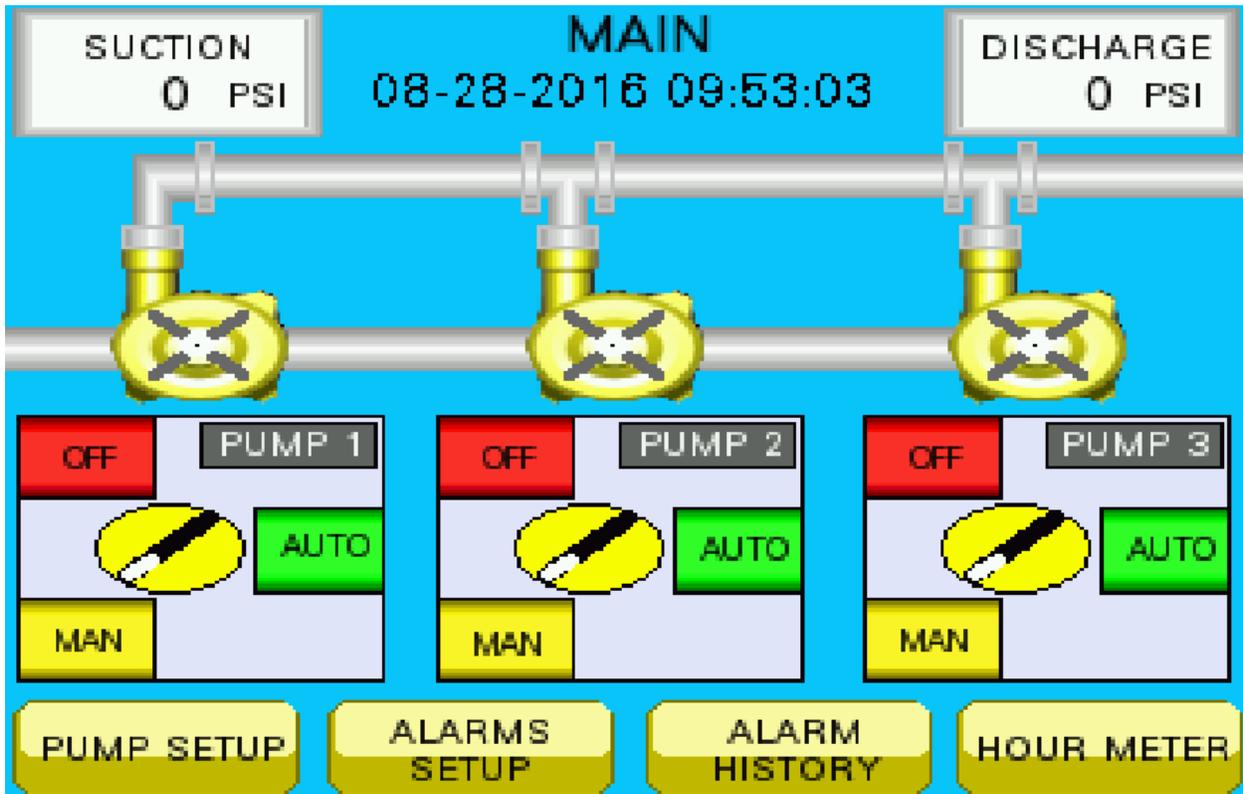

Figure 3.0

Figure 3.1

ALARMS

1. There are several system alarms to help protect the systems connected pumps. Some alarms are global alarms and will stop all pumps and some alarms are local alarms and will only affect that individual pump.

2. When an alarm event occurs you will see the HORN SILENCE screen appear like figure 4.0 below. There will be a red and yellow horn silence button flashing on the screen. At the same time you will hear an alarm beacon signaling that there is an alarm present. Press the HORN SILENCE button to silence the alarm beacon and the screen will automatically switch back to the MAIN screen.

3. Once the screen is back to the MAIN screen you will see a red banner with the active alarm scrolling across it like figure 4.1 below. To the left of this banner is a flashing yellow and red ALARM RESET button. If the ALARM RESET button is pressed the system will go back into auto and try to run the pumps again.
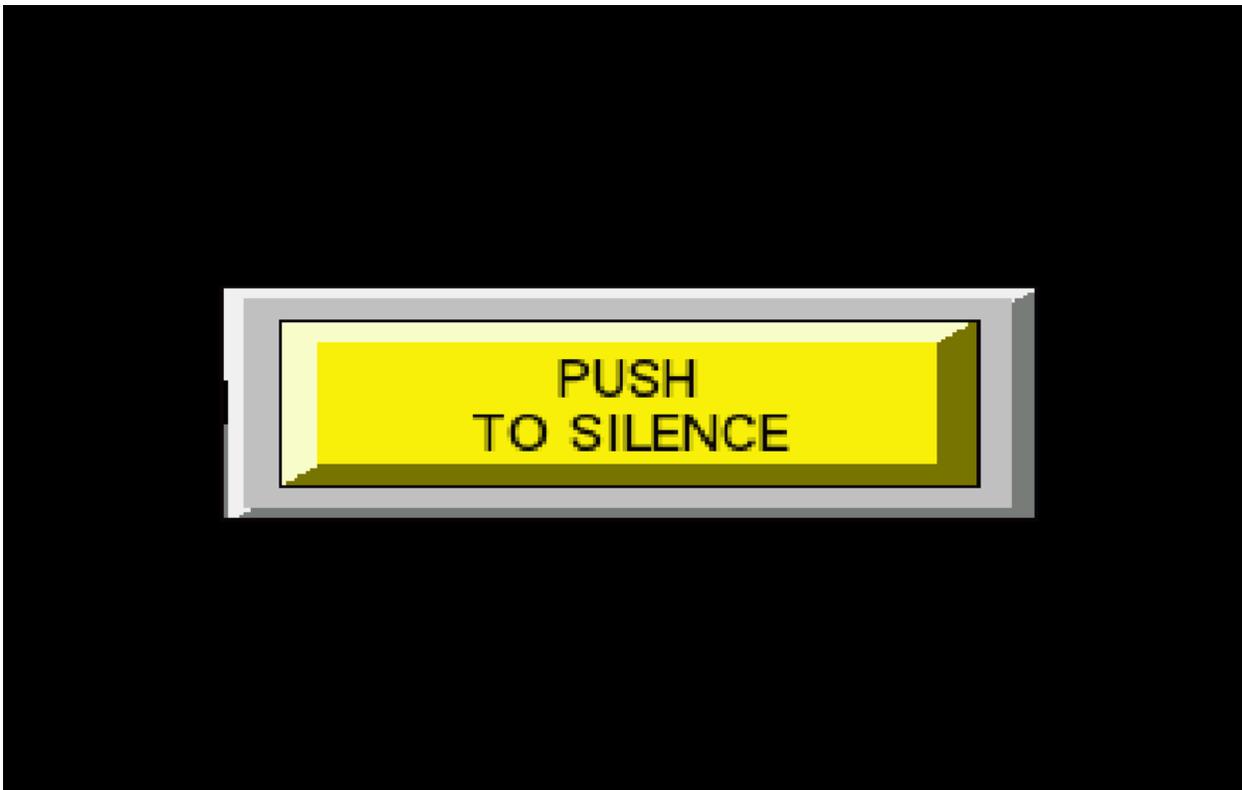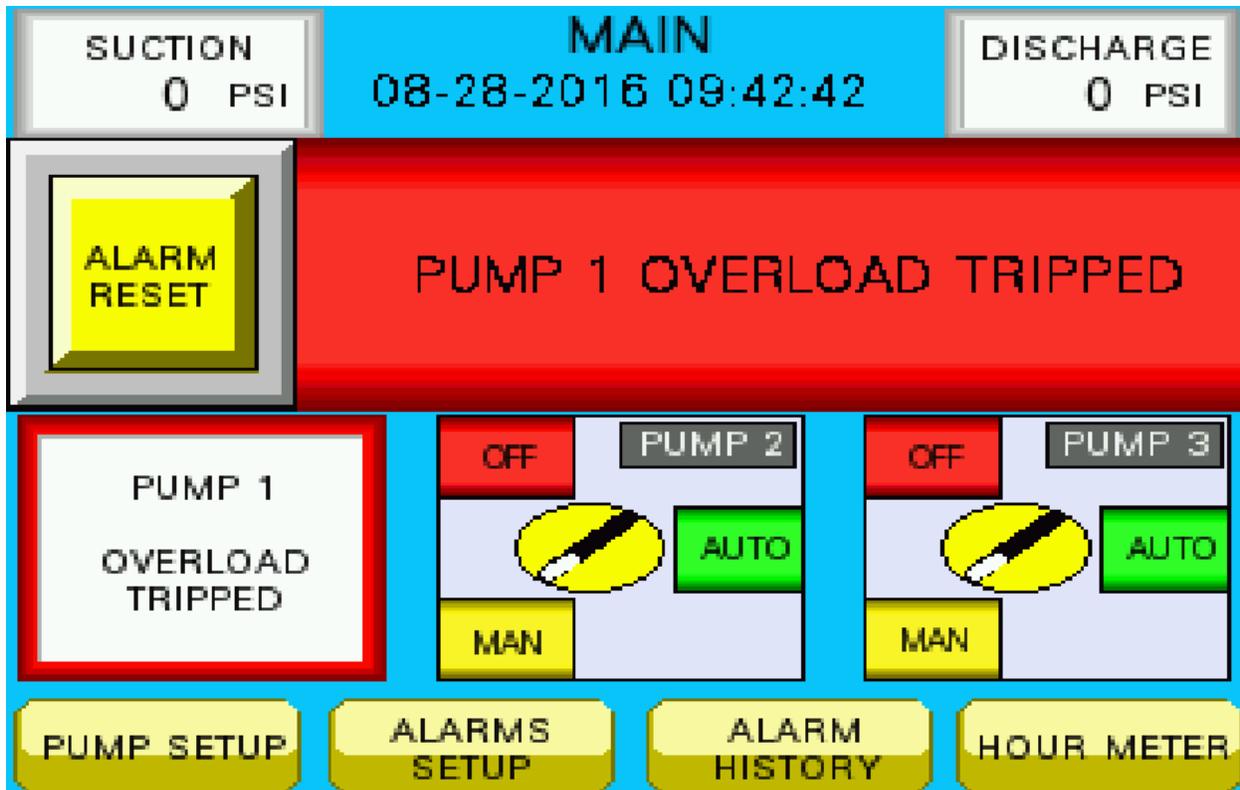

Figure 4.0

Figure 4.1

LOCAL ALARMS

- **Pump not running alarm**
  This alarm occurs when the pump is commanded to run and the motor starter does not energize. The other pumps in the system will continue to run.

- **Pump overload tripped**
  This alarm occurs if the pumps overload trips. The other pumps in the system will continue to run. An error message that says overload tripped will be covering the pumps man/off/auto button that prevents the user from starting the pump with the overload tripped like figure 4.1 above. If this alarm is reset and the overload is still tripped the alarm banner will dissappear but the overload tripped error message will stay in place until the overload is reset. At that point the pump can be placed back into auto or manual.

GLOBAL ALARMS

- **Low suction pressure (Only on models with a suction transducer installed)**
  This alarm occurs when the suction transducer stays below the setpoint while the pumps are running for the amount of time that was set up in the ALARMS SETUP screen like figure 5.0 below.

- **High discharge pressure**
  This alarm occurs when the discharge pressure stays above the setpoint for the amount of time that was set up in the ALARMS SETUP screen like figure 5.0 below.

- **Low discharge pressure**
  This alarm occurs when the discharge pressure stays below the setpoint while the pumps are running for the amount of time that was set up in the ALARMS SETUP screen like figure 5.0 below.

- **Suction transducer failure (Only on models with a suction transducer installed)**
  This alarm occurs when the system detects a bad suction transducer. The suction transducer must be repaired before this alarm can be reset.

- **Discharge transducer failure**
  This alarm occurs when the system detects a bad discharge transducer. The discharge tranducer must be repaired befor this alarm can be reset.

- **Low water alarm (Only on models with a float switch installed)**
  This alarm occurs when the float switch detects a low water condition. The low water condition must be corrected before this alarm can be reset.

ALARM SETUP

1. The user can access this screen using the ALARMS SETUP button from the MAIN screen. Once pressed you will be taken to the ALARMS SETUP screen like figure 5.0 below

2. The user must be logged in to change any setpoints on this screen.

3. For login instructions refer to the quickstart portion of this manual.

4. Once logged in the user should enter the correct setpoints for their system.

5. If the user is logged in the user can enter the pressure settings they want for low suction, low discharge, and high discharge. From this screen you have the ability to make the pressure alarms reset automatically or manually. If the alarms are set to manual the user will have to press the alarm reset button to clear the alarm so the pumps can run again. If the alarm is set for auto reset the alarm can be reset up to 5 times within a one hour period. If the alarm trips for the fifth time in the one hour period the alarm will atomatically be changed to manual and will stay in the alarm state not allowing the pumps to run. The alarm can now be placed back into auto. The alarm reset button will need to be pressed and the system will be reset. After the user has entered all necessary parameters the Main button can be pressed to go back to the Main screen.

6. The setpoints will take affect as soon as the user logs out.

Figure 5.0

ALARM HISTORY

1. The user can access this screen using the ALARM HISTORY button from the MAIN screen. Once pressed you will be taken to the ALARM HISTORY screen like figure 6.0 below.

2. The alarms are sorted from newest (top) to oldest (bottom).

3. If an alarm is still active it will be displayed in red text. The ALARM RESET button like in figure 6.0 below will be available to allow the user to reset the alarm.

4. If an alarm is cleared the text will change from red to green and the ALARM RESET button will dissappear.
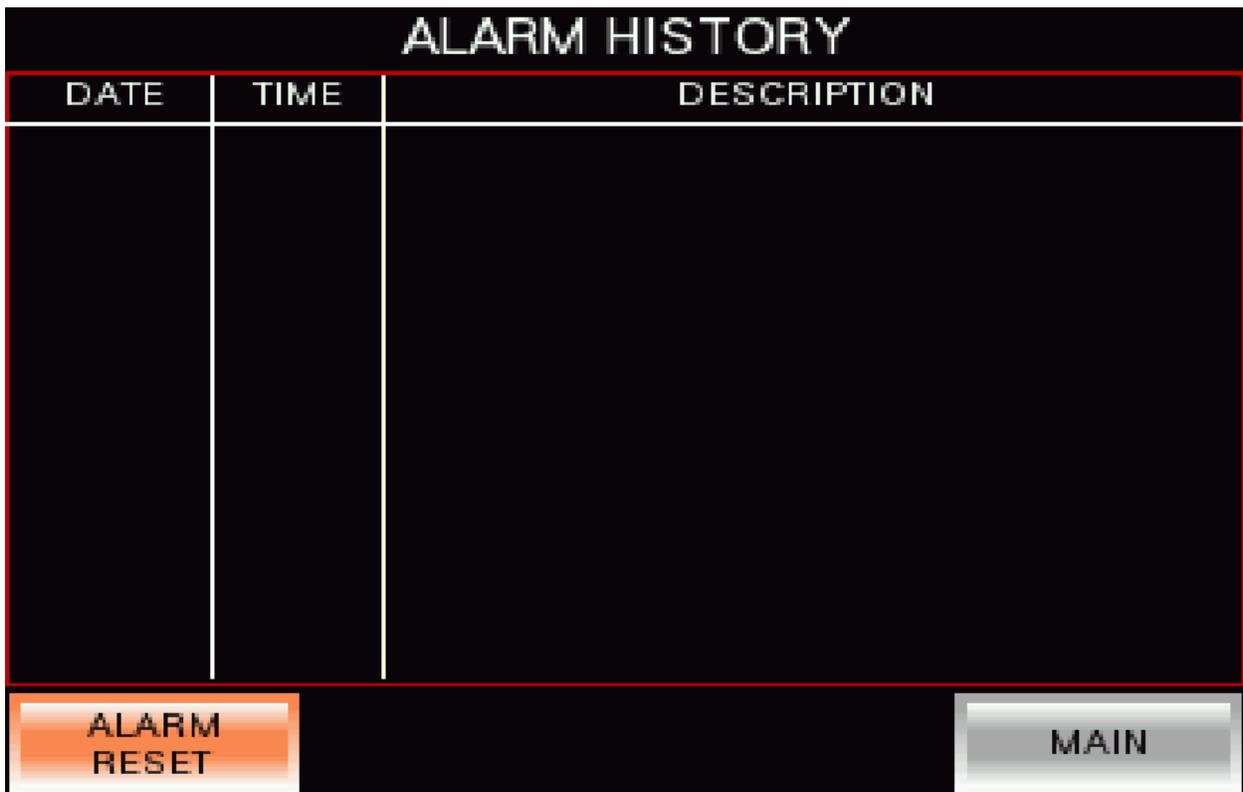

Figure 6.0

PUMP SETUP

1. The user can access this screen using the PUMP SETUP button from the MAIN screen. Once pressed you will be taken to the PUMP SETUP screen like figure 7.0 below

2. The user must be logged in to change any setpoints on this screen.

3. For login instructions refer to the quickstart portion of this manual.

4. Once logged in the user should enter the correct setpoints for their system.

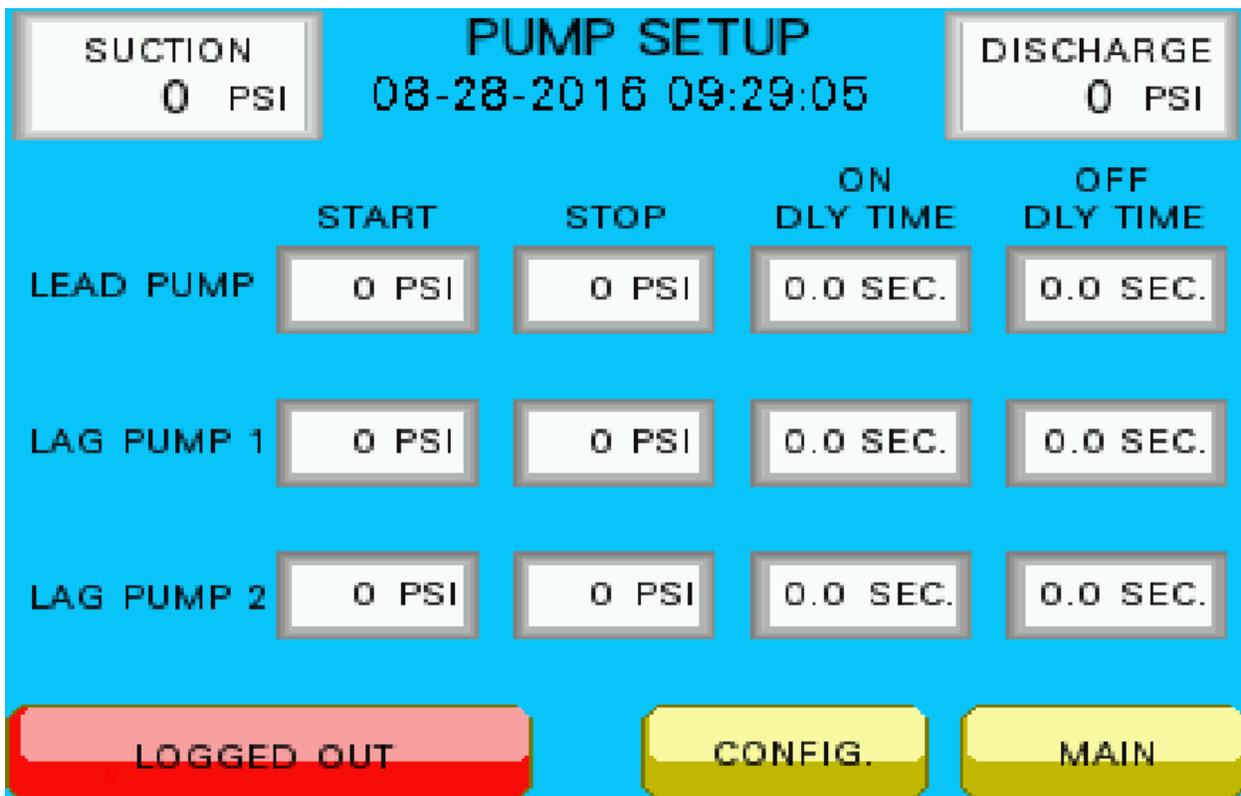5. The setpoints will take affect as soon as the user logs out.

Figure 7.0

CONFIGURATION

1. The user can access this screen using the CONFIG. button from the PUMP SETUP screen. Once pressed you will be taken to the CONFIGURATION screen like figure 8.0 below

2. These settings are made at the factory and are view only. To change these settings contact your local distributor.
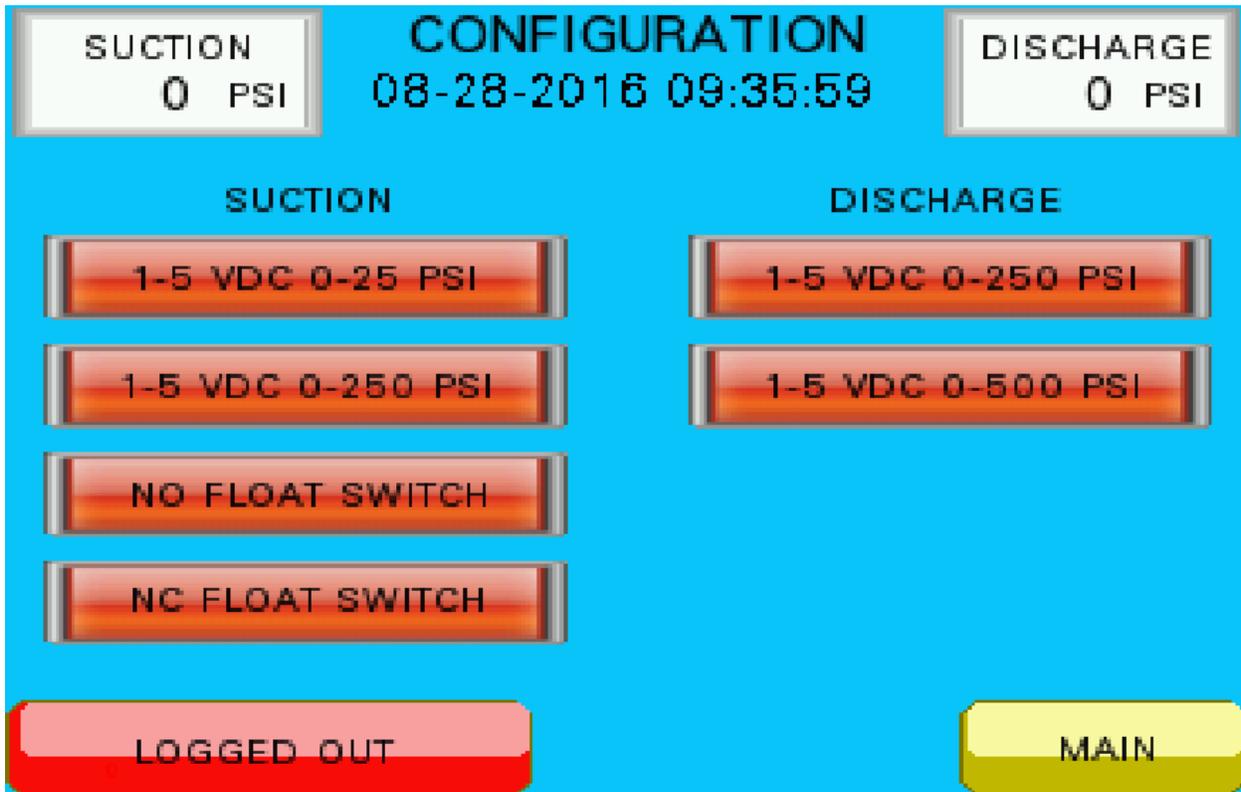

Figure 8.0

DATE AND TIME

1. The user can access this screen using the flashing button behind the clock along the top of each screen that appears while logged in. Once pressed you will be taken to the TIME screen like figure 9.0 below.

2. The user must be logged in to change any setpoints on this screen.

3. For login instructions refer to the quickstart portion of this manual.

4. Once logged in the user should enter the correct date and time for their location.

5. The time and date settings are used for the alarm history log.

Figure 9.0

HOUR METER

1. The user can access this screen using the HOUR METER button from the MAIN screen. Once pressed you will be taken to the HOUR METER screen like figure 10.0 below

2. The hour meters are only ressettable through a special login. Contact your local distributor if the hour meters need to be reset.
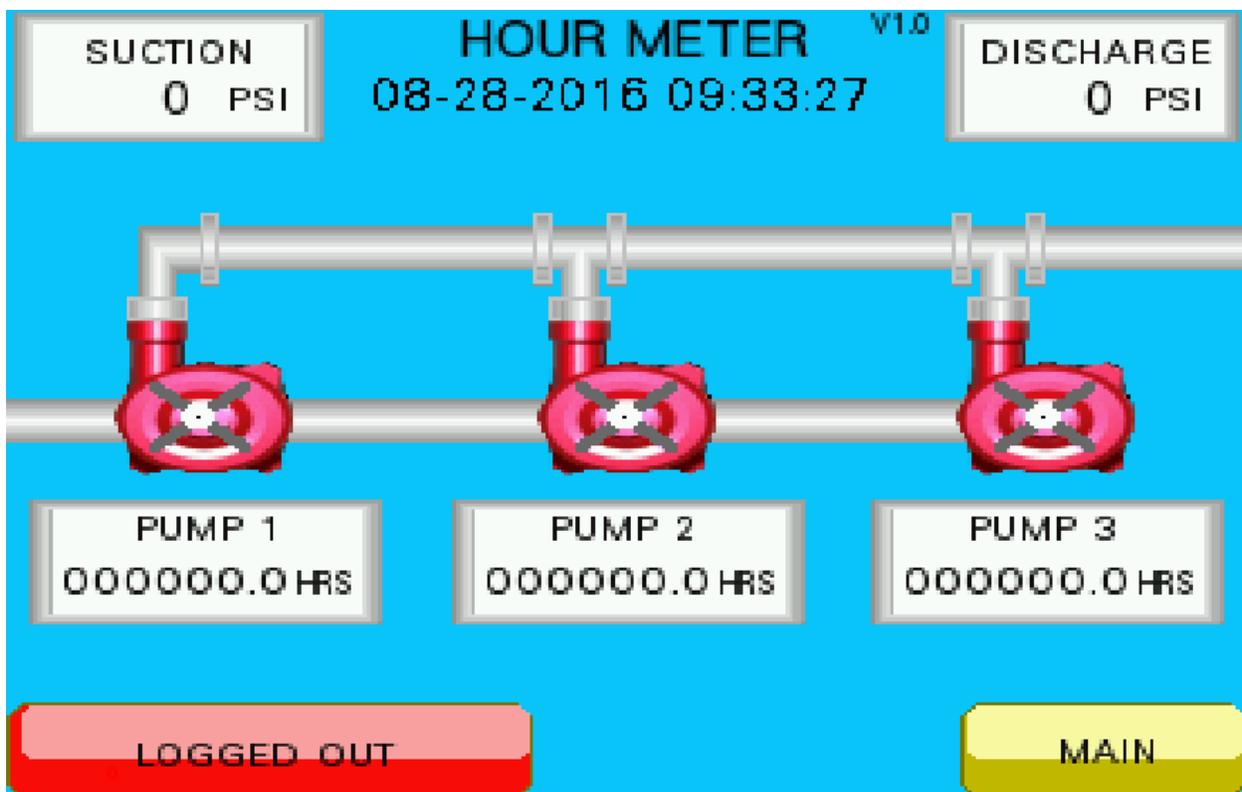

Figure 10.